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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/768,303	01/29/2004	Ozgur C. Leonard	33227/469001	6314
33615	7590	05/26/2010		
OSHA LIANG LLP/Oracle TWO HOUSTON CENTER 909 FANNIN, SUITE 3500 HOUSTON, TX 77010			EXAMINER WALERIC CHARLES	
			ART UNIT	PAPER NUMBER
			2195	
			NOTIFICATION DATE	DELIVERY MODE
			05/26/2010	ELECTRONIC

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/768,303  
Filing Date: January 29, 2004  
Appellant(s): LEONARD ET AL.

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Robert P. Lord  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 03/02/2010 appealing from the Office action mailed 09/30/2009.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Application Serial No. 10/771,698

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-8, 10-19, 21-30, and 32-33 are on appeal.

**(4) Status of Amendments**

The appellant's statement of the status of amendments contained in the brief is correct. Appellants did not file an Amendment after the Final Rejection.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner.

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

20030014466	Berger et al.	01/2003
2006/0168224	Midgley	07/2006
2005/0076326	McMillan et al.	04/2005
2002/0156824	Armstrong et al.	10/2002

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10-19, 21-30, and 32-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al. (US PG Pub No. US 2003/0014466 A1), in view of McMillan et al. (US PG Pub No. US 2005/0076326 A1), in view of Armstrong et al. (US PG Pub No. US 2002/0156824 A1), further in view of Midgley (US PG Pub No. US 2006/0168224 A1).

**Claim 1**

Berger teaches a machine-implemented method, comprising:

establishing a plurality of non-global operating system partitions within a global operating system environment provided by the operating system, wherein each non-global operating system partition serves to isolate processes running within that non-global operating system partition from other non-global operating system partitions within the global operating system environment, wherein enforcement of boundaries between the non-global operating system partitions is carried out by the operating system, and wherein the plurality of non-global operating system partitions comprises a particular non-global operating system partition ([0035] lines 9-14, wherein an operating system sets up logically protected computing environments or compartments);

ensuring that processes running within the particular non-global operating system partition are allowed to utilize only the resources assigned to that partition ([0035] lines 20-22).

Berger does not explicitly teach that each of the non-global partitions comprises a file system. McMillan teaches the use of separate file systems for each of a semi-independent virtual OS environments operating within the scope of a main operating system ([0008]). It would have been obvious to one of ordinary skill in the art at the time of the invention to try to modify Berger to explicitly teach a separate file system for each partition. One would be motivated by the desire to provide better isolation from each of the other environments as taught by McMillan.

Berger does not explicitly teach associating the particular non-global operating system partition with a first resource pool comprising one or more resources. Armstrong teaches the use of processor resource pools in logically partitioned system ([0011-0012]). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Berger to include processor resource pools. Since Berger only discloses methods to assign network resources, one would be motivated by the desire to include a way of assigning each compartment in Berger to a processor resource pool.

Berger and Armstrong teach: receiving a request to change the resource pool association for the particular non-global operating system partition to associate the

particular non-global operating system partition with a second resource pool instead of the first resource pool, wherein the second resource pool is a different resource pool from the first resource pool, and wherein the second resource pool comprises one or more resources (Armstrong [0009], wherein resources can be reallocated according to a user);

changing the resource pool association for the particular non-global operating system partition to cause the particular non-global operating system partition to be associated with the second resource pool instead of the first resource pool (Armstrong [0009], wherein resources can be reallocated); and

ensuring that the processes running within the particular non-global operating system partition are allowed to utilize only the resources in the second resource pool (Berger [0035] lines 20-22 and Armstrong [0010]).

Berger and Armstrong do not teach that changing the resource pool associations is performed without terminating and restarting the processes running within the particular non-global operating system partition.

Midgley teaches a method of allocated resources from a server pool without the need to restart the server ([0006]). Midgley teaches that such methods reduce the amount of downtime encountered in a server environment ([0003]). It would have been obvious to one of ordinary skill in the art to allow for changes in resource associations to be

performed without terminating and restarting the processes. One would be motivated by the desire to reduce the downtime encountered as taught by Midgley.

Claim 2

Armstrong teaches that the first resource pool comprises one or more processors ([0012]).

Claim 3

Armstrong teaches that ensuring comprises: assigning work from processes running within the particular non-global operating system partition to only the one or more processors in the first resource pool ([0011], wherein each logical partition is constrained to execute in an assigned processor set).

Claim 4

Armstrong teaches that the first resource pool comprises an indication of a maximum amount of memory that can be consumed ([0023]).

Claim 5

Berger, McMillan, Armstrong, and Midgley do not explicitly teach that ensuring comprises:

receiving, from a particular process running within the particular non-global operating system partition, a memory allocation request; determining whether granting



the memory allocation request would cause the maximum amount of memory that can be consumed to be exceeded; and in response to a determination that granting the memory allocation request would not cause the maximum amount of memory that can be consumed to be exceeded, granting the memory allocation request.

However, it is old and well known that operating system manage memory allocation requests and grant them accordingly. It would have been obvious to one of ordinary skill in the art to modify Berger and Armstrong to explicitly teach memory management.

#### Claim 6

Berger, McMillan, Armstrong, and Midgley do not explicitly teach ensuring further comprises: in response to a determination that granting the memory allocation request would cause the maximum amount of memory that can be consumed to be exceeded, deallocating sufficient memory from one or more other processes to enable the memory allocation request to be granted without causing the maximum amount of memory that can be consumed to be exceeded; and granting the memory allocation request.

It is old and well known that OS can reallocate resources to ensure the efficient management of resources such as when a high priority process has an urgent processing target that needs to be met. It would have been obvious to one of ordinary skill in the art at the time of the invention to deallocate sufficient memory from one or more other processes to enable the memory allocation request to be granted without

causing the maximum amount of memory that can be consumed to be exceeded and granting the memory allocation request. One would be motivated by the desire to ensure that high priority requests are granted.

Claim 7

Berger teaches that the operating system is executed on a computer system, and wherein the resources in the first resource pool are just a subset of a total set of resources available on the computer system ([0035] lines 20-26).

Claim 8

Armstrong teaches that ensuring comprises: associating each process running within the particular non-global operating system partition with the first resource pool ([0011], wherein each logical partition is constrained to execute in an assigned processor set).

Claim 10

Armstrong teaches that ensuring that processes running within the particular non-global operating system partition are allowed to utilize only the resources in the second resource pool comprises: associating each process running within the particular non-global partition with the second resource pool instead of the first resource pool ([0011], wherein each logical partition is constrained to execute in an assigned processor set).

Claim 11

Berger, McMillan, Armstrong, and Midgley do not explicitly teach that the operating system executes on a computer system, and wherein the method further comprises: prior to receiving the request to change the resource pool association: receiving, from a particular process running within the particular non-global operating system partition, a request for information pertaining to all resources; and providing, to the particular process, information pertaining only to the one or more resources in the first resource pool, even though the computer system comprises other resources.

Armstrong teaches that each partition is completely separated from each other ([0034]). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide information pertaining only to the one or more resources in the first resource pool, even though the computer system comprises other resources. One would be motivated by the desire to enforce isolation of partitions as indicated by Armstrong ([0034]).

Claims 12-19, 21-30, and 32-33

Claim 12-19, 21-30, and 32-33 are the machine-readable medium and apparatus claims of claims 1-8, and 10-11 above. Therefore, they are rejected for the same reasons as claims 1-8, and 10-11 above.

**(10) Response to Argument**

Appellants arguments filed 03/02/2010 have been fully considered but they are not persuasive. Appellant argues that the cited prior art fails to disclose “causing a non-global OS partition to be associated with a particular resource pool without terminating and restarting the processes executing in the non-global OS partition” (Brief pg 11, section A). This argument is not found to be persuasive in view of the cited prior art.

The cited prior art in question, Armstrong et al (US PG Pub No. US 2002/0156824 A1) discloses a method of partitioning a computer system into multiple logical partitions and assigning resources to the partitions ([0008]). Midgley (US PG Pub No. US 2006/0168224 A1) teaches a method for the dynamic reconfiguration of server resources based on demand (abstract) whereby the resource allocation can be changed without the need to restart the server ([0006]).

First, Armstrong is very clear that resources are grouped into resource pools ([0012], wherein processors can be grouped into processor pools). Armstrong further teaches that such processor pools can be assigned to a single partition ([0012]) wherein each partition is constrained to use the assigned processor pool ([0011]). Figure 3 and paragraph [0040] indicate that partition 304 executes in processor pool 316 comprising three processors and partitions 301-303 execute in processor pool 315 comprising five processors.

Second, Armstrong makes a specific point to teach that resources can be reallocated to partitions ([0009], wherein an authorized user can re-allocate system resources in response to changing needs; [0010], wherein a need exists to enable an

administrator to achieve greater isolation of the effects of reallocation to specific targeted logical partitions). Armstrong further teaches that the combinations for allocation are not limited to Figure 3 and that an administrator could choose to allocate resources using any number of combinations ([0049]). Therefore, it logically follows that Armstrong teaches the ability to change the allocation of resource pools to partitions based the administrator settings for such allocations.

Third, Midgley clearly teaches the need to allow for changes to a server's resource allocation to be made without the need to restart the server ([0003], [0006]). Restarting a server whenever a resource change is made (i.e. resource pool changes) is inconvenient and causes loss of service ([0003]). Therefore, one of ordinary skill reading both the Armstrong and Midgley references would have known to modify Armstrong to allow for the changing resource pool allocations to partitions without the need to terminate and restart the partition.

Appellant further argues that the "combination of Berger and McMillan to render obvious the feature that non-global OS partitions each comprise a file system is improper" (Brief pg 13, section B). This argument is not found to be persuasive in view of the cited prior art.

The cited prior art in question, Berger et al. (US PG Pub No. US 2003/0014466 A1), teaches a containment or isolation system using an operating system to create compartments in which tasks can operate without effecting tasks in other compartments ([0021], [0035]). McMillan et al. (US PG Pub No. US 2005/0076326 A1), teaches a

system in which semi-independent virtual OS environments operate within a single operating system, wherein each environment contains an independent file system ([0008]).

Appellant asserts that a person skilled in the art would not be motivated to modify Berger so that each container comprises a separate file system because Berger is directed to simplifying the compartment system by avoiding editing configuration files by merely tagging the resources already available (Brief page 15 lines 1-3). As proof, that Berger is directed to simplifying the compartment system, Appellant submits that paragraph [0130] of Berger provides utilities for managing compartments instead of requiring the editing of a configuration file.

First, Examiner can find no evidence that Berger is directed towards simplifying the compartment system. Even assuming, *arguendo*, that Berger is directed towards simplifying the compartment system, there is no teaching as to why one of ordinary skill in the art would not modify Berger to realize the improvements of having independent file taught by McMillan, despite the complexities that may arise in such an implementation.

Second, Appellant misinterprets paragraph [0130] of Berger. Paragraph [0130] of Berger refers to an alternative method of managing the compartments wherein utilities are used to manipulate the compartments instead of having a user modify a configuration file manually. In other words, Berger teaches using a less error prone method of configuration using utilities. However, Appellant uses this passage of Berger to indicate that Berger teaches away from the substantial editing of the configuration

file. No where does Berger make such a statement implied or otherwise. In view of the prior art, Berger and McMillan are properly combinable, and the rejections have been maintained.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Eric C Wai/

Examiner, Art Unit 2195

Conferees:

/Meng-Ai An/

Supervisory Patent Examiner, Art Unit 2195

/Lewis A. Bullock, Jr./

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